

CHAPTER 5. METHODS

Field Methods

The archaeological salvage recovery at site 31SK15 took place from March 25 to May 1, 1997. A 10-m grid was established across the project area, with a primary site datum at grid location N50W50. A large nail was driven into the ground at this grid location and left in place following the end of fieldwork. Because the planned bridge construction would remove all convenient reference points, two trees outside of the planned construction zone were tied into this grid system. These trees are located along the east edge of the agricultural field north of the project area. These trees were marked with nails and spray paint. The Tree Datum 1 nail is 89 m from the grid datum at N50W50 at an angle of 19 degrees (see Figure 2). The Tree Datum 2 nail is 273 m from the grid datum at 350 degrees.

Site elevations were taken relative to a U.S. Geological Survey benchmark set into the NC 311 bridge over the Dan River. A sawed-off telephone pole located close to the N50 grid line was used as the datum for elevations. The top of the pole was determined to have an elevation of 184.18 m above mean sea level. The baseline of the grid (N50 line) was set in with a surveying transit. This baseline was oriented 23 degrees off of cardinal west at 247 degrees. The excavation grid deviated from the cardinal directions and is oriented instead with the lateral ditch. The east-west grid lines roughly parallel the lateral ditch. This orientation was chosen to facilitate recording the lateral ditch walls. Due to the curvature of the lateral ditch, inset units over features in the side walls of the lateral ditch were excavated perpendicular to the ditch wall and were designated by their westing, that is, W119.5-W123.6. The three block excavation trenches conformed to a standard metric grid with 2-x-3-m units. Two of the blocks measured 3-x-6-m and one measured 3-x-10-m (Figure 5).

The area of the lateral ditch (Figure 6) that contained buried soils and archaeological materials measured approximately 200 m. Because the western end of the ditch was found to be too low and wet to have potential for archaeological deposits, it was not included in the scope of the investigations. Prior to fieldwork by Coastal Carolina Research, Inc., a track hoe created a dam in the western portion of the lateral ditch in order to contain the wetland seepage into the eastern portion of the project area. During a period of heavy rain, however, the dam overflowed and flooded the eastern portion of the lateral ditch (Figure 7). However, no archaeological data was lost or damaged during this flooding episode.

The track hoe was also used to push the backdirt away from the lateral ditch edge to an extended easement line as a safety precaution (Figure 8). In the eastern 200 m of the ditch, profiles on both sides of the ditch were cleaned and photographed (Figure 9). Coastal Carolina Research, Inc. documented the stratigraphy, and Keith C. Seramur, P.G., senior geologist for Geonetics Corporation also examined it.

Despite the removal of the backdirt from the edge of the lateral ditch, a small grader did not have enough space to access the north side of the lateral ditch. The plow zone was removed by hand on this side. On the south side of the lateral ditch, plow zone over the archaeological features disturbed by the ditch was removed using the grader. None of the plow zone was screened. The grader was also used to remove plow zone from the three block excavation trenches. Subsequent soil zones were removed by hand until features could be clearly distinguished or until sterile subsoil was reached. These sub-plow-zone soils were designated

Zones 2 and 3. Zone 2 was later determined to be an older, darker plow zone that contained prehistoric and some historic artifacts. Zone 3 appears to be a plow-disturbed, buried A-Horizon (see geomorphology section). Cultural features associated with the aboriginal occupation of the site were truncated by Zone 2, but cut through Zone 3. Soil from both of these zones in all excavation units except Block Trench 3 was dry screened through 1/4-inch mesh. Zone 2 was determined to be a plow zone before Block Trench 3 was fully excavated and, therefore, Zone 2 in this final excavation block was not screened. A 5-gallon sample from each zone of each unit was waterscreened through 1/4- and 1/16-inch mesh. Excavation information for these zones was recorded on level forms.

At the level at which archaeological features could be distinguished, the units were troweled, photographed, and then mapped. All excavation units were mapped at a scale of 1 inch to 50 cm. All photographs were taken in both color and black and white, and photograph logs were kept. Features cut by the lateral ditch or features which intruded into those cut by the ditch were fully excavated, mapped, and photographed. A sample of the features identified in the block excavation trenches was bisected and only half of each feature was excavated. Feature photographs included profiles, planviews, and base of excavation. Profiles were drawn and photographed, and excavation data was recorded on feature forms. Within features, natural soil zones were excavated in 10-cm arbitrary levels. Soils in archaeological features were described by texture, and color was determined by comparison with the Munsell Soil Color Chart. In order to obtain radiometric information, ¹⁴C samples were taken from features containing adequate amounts of charcoal. These charcoal samples were collected with metal tools and placed in aluminum packets at the time they were excavated. All soil from features was waterscreened through 1/4- and 1/16-inch mesh. Artifact bags were labeled by provenience for lab processing. A 1-gallon flotation sample and a 1-quart soil sample were taken from each zone of each feature. The flotation samples were processed and selected samples were analyzed by a paleoethnobotanist in order to examine them for botanical remains. The soil samples will be curated for possible future soil analysis.

Laboratory Methods

All artifacts were bagged in zip-loc plastic bags and labeled by provenience. All artifacts were washed and processed. Artifacts large enough to label were marked with an Office of State Archaeology (OSA) accession number with an added suffix reference number. Small artifacts were bagged by provenience, and the bags were labeled.

Prehistoric ceramics and lithics were analyzed, typed, quantified, and described in comparison to established typologies (Appendix A). Faunal materials were also analyzed and quantified (Appendix B). Paleoethnobotanical samples are being analyzed by Kristen Gremillion, Ph.D., of Ohio State University. The results of her analysis are found in Appendix C. Charcoal samples from features 16 and 17 were sent to Beta Analytic to be processed (Appendix D). Soil samples from each zone of each feature were curated for future soil analysis.

Geologic Investigation and Sediment Sampling

The geologic investigation was designed to evaluate the origin of the sediment exposed in the walls of the lateral ditch and to develop a depositional history for the floodplain.

Sediment samples were collected to characterize the lithofacies of the sediment exposed in the lateral ditch and to investigate specific processes such as the development of soils within the section. Samples were collected for analysis of grain size distribution and percent total organic carbon. Eight samples were collected for grain size analyses and four samples for total organic carbon analyses. Photographs were taken of the lateral ditch stratigraphy and geologic features. Sediment samples were placed in clean plastic bags and recorded. The samples collected for total organic carbon were packed on ice and maintained at a temperature of $\leq 4^{\circ}\text{C}$ until delivered to the laboratory.

Geologic Laboratory Methods

The sediment samples collected for grain size analyses were removed from the plastic bags, dried, and weighed using a digital torsion balance. Each sample was soaked in distilled water and dispersed using a sonic dismembrator. Samples that appeared to contain excessive organic matter were treated with 30 percent hydrogen peroxide solution. Each sample was wet sieved through a 63-micron sieve. The sand fraction, retained on the sieve, was then dried and weighed. The fine fraction was dispersed in a sodium metaphosphate solution and analyzed on a SediGraph model No. 5100 to determine percent silt and clay.

The weight of the sand fraction was divided by the total dry weight of each sample to determine the percent sand. Percent silt and clay was determined from the weight of the fine fraction and the results of the SediGraph analyses.

The samples collected for total organic carbon were delivered to Blue Ridge Labs in Lenoir, North Carolina. The samples were analyzed using EPA Method 415.2, which has a minimum detection limit of 0.01 percent. The results of these analyses are listed below in Table 1.